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Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1. (currently amended) An automated detection algorithm <u>embodied in a computer readable medium, the automated detection algorithm</u> to compute the ring profile of colon like surfaces comprising the steps of:

providing an original image of a colon like surface disposed along a major axis in a scan having vertex points, each vertex point having a discrete point identifier and three dimensional position information;

generating a ~~thin~~ <u>shrunken</u> version of the colon like surface utilizing neighbors averaging of the three dimensional position information for every vertex point in the original colon view;

modeling the ~~thin~~ <u>shrunken</u> version of the colon like surface with an ordered set of 3-D points to produce a curve proximate to the major axis of the colon like surface;

isolating segments of vertex points ~~(along)~~ between planes normal to the curve proximate to the major axis of the colon <u>like surface</u> from the ~~thin~~ <u>shrunken</u> version of the colon like surface;

mapping the isolated segments of vertex points from the ~~thin~~ <u>shrunken</u> version of the colon like surface back to the original image of the colon like surface to generate a ring profile of the colon like surface.

2. (original) The automated detection algorithm to compute the ring profile of colon like surfaces according to claim 1 comprising the steps of:

decimating the vertex points of the provided original image.

3. (original) The automated detection algorithm to compute the ring profile of colon like surfaces according to claim 1 comprising the steps of:

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computing a centerline of the colon utilizing the ring profile of the colon like surface.

4. (original) The automated detection algorithm to compute the ring profile of colon like surfaces according to claim 3 comprising the steps of:

measuring along the computed centerline of the colon like surface to determine positional information relative to the colon like surface.

5. (currently amended) The automated detection algorithm to compute the ring profile of colon like surfaces according to claim 3 comprising the steps of:

smoothing the computed centerline of the colon ~~computing a smoothed version of the centerline of the colon to approximate centerlines obtained by invasive colonoscopy~~.

6. (original) The automated detection algorithm to compute the ring profile of colon like surfaces according to claim 3 comprising the steps of:

utilizing the ring profile along a preselected length of the computed colon centerline to determine the local colon volume and local colon distension along the preselected length of the colon.

7. (currently amended) The automated detection algorithm to compute the ring profile of colon like surfaces according to claim 3 comprising the steps of:

mapping the vertices distance to the computed centerline; ~~and,~~ and

building an image of vertices distances to centerline to map the colon.

8. (currently amended) The automated detection algorithm to compute the ring profile of colon like surfaces according to claim 3 comprising the steps of:

mapping the vertices distance to the computed centerline to obtain a mapped centerline view of the colon;

rotating the mapped centerline view of the colon to spatially reorient the mapped centerline view of the colon; ~~and,~~ and

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reconstructing a spatially reoriented image of the colon from the rotated centerline view by expanding the vertices distances to map the colon.

9. (currently amended) An automated detection algorithm <u>embodied in a computer readable medium, the automated detection algorithm</u> to compute the ring profile of colon like surfaces comprising the steps of:

providing an original image of the colon like surfaces disposed along a major axis in a scan having the colon like surface identified by vertex points, each ~~of~~ vertex point having a discrete point identifier and three-dimensional positional information;

generating a ~~thinned~~ <u>shrunken</u> image of the colon like surface utilizing a neighbors averaging of the three-dimensional positional information for vertex points in the original colon view;

randomly designating a first vertex modeling point at a vertex point along the ~~thinned~~ <u>shrunken</u> ~~the~~ colon image;

identifying and marking neighboring vertex points to the randomly selected first vertex modeling point;

designating a second vertex modeling point located at a predetermined distance from the first ~~of~~ vertex modeling point;

sequentially repeating the identifying and marking, and designating steps to designate vertex modeling points from the randomly selected first vertex modeling point to an end of the colon;

connecting the designated vertex modeling points to produce a curve proximate to the major axis of the colon like surface;

isolating groups of vertex points between plans normal to the curve from the ~~thin~~ <u>shrunken</u> image of the colon like surface; ~~and,~~ <u>and</u>

mapping the isolated groups of ~~a~~ vertex points from the ~~thinned~~ <u>shrunken</u> image of the colon like surface back to the original image of the colon like surface to generate a ring profile of the colon like surface.

10. (currently amended) An automated detection algorithm embodied in a computer readable medium, the automated detection algorithm to compute an approximate centerline profile of colon like surfaces comprising the steps of:

providing an original image of the colon like surfaces disposed along a major axis in a scan having the colon like surface identified by vertex points, each ~~of~~ vertex point having a discrete point identifier and three-dimensional positional information;

generating a ~~thinned~~ shrunken image of the colon like surface utilizing ~~a~~ neighbors averaging of the three-dimensional positional information for vertex points in the original colon view;

randomly designating a first vertex modeling point at a vertex point along the ~~thinned~~ shrunken ~~the~~ colon image;

identifying and marking neighboring vertex points to the randomly selected first vertex modeling point;

designating a second vertex modeling point located at a predetermined distance from the first of vertex modeling point;

sequentially repeating the identifying and marking, and designating steps to designate vertex modeling points from the randomly selected first vertex modeling point to an end of the colon; and

connecting the designated vertex modeling points to produce a curve proximate to the major axis of the colon like surface.

11. (currently amended) An automated detection algorithm embodied in a computer readable medium, the automated detection algorithm to compute the ring profile of colon like surfaces comprising the steps of:

providing an original image of the colon like surface ~~surfaces~~ disposed along a major axis in a scan having the colon like surface identified by vertex points, each ~~of~~ vertex point having a discrete point identifier and three-dimensional positional information;

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generating a ~~thinned~~ <u>shrunken</u> image of the colon like surface utilizing ~~a~~ neighbors averaging of the three-dimensional positional information for vertex points in the original colon view;

randomly designating a first vertex modeling point at a vertex point along the ~~thinned~~ <u>shrunken</u> ~~the~~ colon image;

identifying and marking neighboring vertex points to the randomly selected first vertex modeling point;

designating a second vertex modeling point located at a predetermined distance from the first ~~of~~ vertex modeling point;

sequentially repeating the identifying and marking, and designating steps to designate vertex modeling points from the randomly selected first vertex modeling point to an end of the colon; <u>and</u>

connecting the designated vertex modeling points to produce a curve proximate to the major axis of the colon like surface~~;~~

~~isolating groups of vertex points between planes normal to the curve from the thin image of the colon like surface; and,~~

~~mapping the isolated groups of a vertex points from the thinned image of the colon like surface back to the original image of the colon like surface to generate a ring profile of the colon like surface.~~

12. (currently amended) An automated detection algorithm ~~to compute an approximate centerline profile of colon like surfaces~~ <u>according to Claim 11,</u> comprising the steps of:

~~providing an original image of the colon like surfaces disposed along a major axis in a scan having the colon like surface identified by vertex points, each of vertex point having a discrete point identifier and three-dimensional positional information;~~

~~generating a thinned image of the colon like surface utilizing a neighbors averaging of the three-dimensional positional information for vertex points in the original colon view;~~

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~~randomly designating a first vertex modeling point at a vertex point along the thinned the colon image;~~

~~identifying and marking neighboring vertex points to the randomly selected first vertex modeling point;~~

~~designating a second vertex modeling point located at a predetermined distance from the first of vertex modeling point;~~

~~sequentially repeating the identifying and marking, and designating steps to designate vertex modeling points from the randomly selected first vertex modeling point to an end of the colon;~~

~~connecting the designated vertex modeling points to produce a curve proximate to the major axis of the colon like surface~~

<u>isolating groups of vertex points between planes normal to the curve from the shrunken image of the colon like surface; and</u>

<u>mapping the isolated groups of a vertex points from the shrunken image of the colon like surface back to the original image of the colon like surface to generate a ring profile of the colon like surface.</u>

13. (new)   The automated detection algorithm to compute the ring profile of colon like surfaces according to claim 3, wherein computing a centerline of the colon utilizing the ring profile of the colon like surface comprises determining the center point of a bounding box associated with the ring profile, wherein the centerline includes the center point of the bounding box.

14. (new)   The automated detection algorithm to compute the ring profile of colon like surfaces according to claim 1, wherein the shrunken version of the colon like surface is associated with a smaller bounding box than the original image of the colon like surface.